

a conductive layer having a first side and a second side wherein a first side of the conductive layer is attached to the base film;

an overcoat layer attached to a first portion of a second side of the conductive layer; and

a conductive element attached to a second portion of the second side of the conductive layer wherein the conductive element is adapted to form an electrical conduit between the conductive layer and the attached bonding pad, and the overcoat layer is to press against said bonding pad.

Remarks

Claims 1-5, 21-24 and 26-33 are pending in the current applications. Claims 6-20, 25 and 34-39 have been withdrawn in response to the Examiner's Restriction Requirement. Applicant reserves the right to pursue the withdrawn claims in one or more divisional/continuing applications. Claims 1, 21, and 27 have been amended to bring out features of the present invention and correct typographical errors.

Drawings

The drawings were objected to as failing to show proper cross-hatching and failing to indicate that certain figures should be designated as 'Prior Art.' Formal drawings will be submitted in a separate document.

Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 1-5, 21-24, 26 and 27-33 were rejected under 35 U.S.C. § 112, second paragraph as failing to distinctly claim the invention. In particular, the Examiner points out that in claim 1, it is not clear what is meant by “conductive structure” and “anisotropic conductive adhesive disposed surrounding the conductive structure.” Attention is drawn to Fig. 6 and the paragraph beginning on page 5, line 14 of the present application. Element 610 is described as a ball structure, bump, etc. In one embodiment, it is made of gold, a well-known conductor. Accordingly element 610 is an example of a conductive structure as used in the pending claims. As to “anisotropic conductive adhesive,” the same paragraph describes placement of such adhesive in the space surrounding element 610 (see, e.g., lines 19-20). As can be seen from the above the terms “conductive structure” and “anisotropic conductive adhesive” refer to two different elements that are properly described in the specification with reference to Fig. 6. In view of the above, reconsideration and withdrawal of the rejection of claims 1-5, 21-24, 26 and 27-33 under 35 U.S.C. § 112, second paragraph is respectfully requested.

Rejections Under 35 U.S.C. § 103(a)

Claims 1, 3, 21, 23, 24, 26-29, and 31 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,098,271 to Yamamoto et al. (“Yamamoto”) in view of U.S. Patent No. 5,734,523 to Scheidecker et al (“Scheidecker”). Claims 2, 4-5, 22, 30, 32 and 33 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamamoto and Scheidecker in view of U.S. Patent No. 4,740,657 to Tsukagoshi (“Tsukagoshi”).

According to an embodiment of the present invention, with respect to claim 1, a flex-print circuit (FPC) is attached to a bonding pad in an improved manner. In this claim, an overcoat layer

is provided that includes two sections that partially overlap and are to be pressed onto a top surface of the bonding pad. A conductive structure forms an electric conduit between a conductive layer of the FPC and the bonding pad, and anisotropic conductive adhesive is disposed at least partially surrounding the conductive structure. Looking at Figs. 5b and 6, an advantage of such a bonding can be readily seen. In both of these figures, the overcoat layer is pressed onto the bonding pad. In Fig. 6, however, an example of a conductor element is disposed between a conductive layer of the FPC and the bonding pad. Any subsequent pressure over the voided area of the overcoat layer will have a lower likelihood of deforming as shown in Fig. 5b. Claims 1 and 27 have been amended to bring out this feature of the present invention. Claim 21 also refers to the attachment of an FPC to a bonding pad. In claim 21, a conductive bump is lodged between the conductive layer of the FPC and the bonding pad and adhered using an anisotropic conductive adhesive.

Yamamoto refers to a method for assembling a magnetic disk drive component using a flexible printed circuit sheet. With respect to claims 1 and 27, though Yamamoto shows two sections of a poly layer 46, there is no teaching or suggestion in Yamamoto to press such a poly layer against the bonding pad as recited in these claims. As seen in Fig. 4, the poly layer is not to make any sort of contact with the terminal 32. Instead, the copper bump 48 is to make the primary contact between the conductor pattern 38 and the terminal 32. With respect to claim 21, as described in Yamamoto, a solder fillet 52 is used to complete the electrical connection between the copper bump 48 and the terminal 32.

Scheidecker fails to make up for the deficiencies of Yamamoto. Scheidecker refers to conductive film connectors for use on head assemblies in drives. As shown in Figs. 8 and 9, conductor leads 64 are electrically coupled to pads at the bottom of the drawings through conductive

particles 65 in an adhesive layer 66. With respect to claims 1 and 27, Scheidecker does not teach or suggest the feature of an overcoat layer to be pressed onto the bonding pad, a feature wholly missing from Yamamoto. With respect to claim 21, there is no suggestion in the Yamamoto reference to replace the solder fillet described therein with the anisotropic conductive adhesive of Scheidecker.

Tsukagoshi also fails to make up for the deficiencies of Yamamoto and Scheidecker. Tsukagoshi, like Scheidecker, refers to the use of conductive particles in an adhesive to electrically couple to conductors. Referring to Fig. 3, conductive particles 8 join to electrically couple electrical elements 5 and 6. Though Tsukagoshi refers to other types of conductive particles, this reference does not teach or suggest the overcoat layer presses onto the bonding pad as recited in claims 1 and 27. Likewise, there is no suggestion in Yamamoto to replace the solder fillet described in that reference with the conductive film of Tsukagoshi.

Claims 2-5, 22-24, 26 and 28-33 depend from and further define claims 1 21 and 27 are also believed to be patentable in view of the cited references. Accordingly, reconsideration and withdrawal of the rejection of claims 1-5, 21-24, 26 and 27-33 under 35 U.S.C. § 103(a) is respectfully requested.

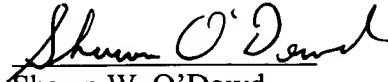
CONCLUSION

The Applicant respectfully submits that this application is in condition for allowance. A Notice of Allowance is earnestly solicited.

The Examiner is invited to contact the undersigned at (202) 220-4255 to discuss any matter concerning this application. The Office is hereby authorized to charge any additional fees or credit any overpayments under 37 C.F.R. § 1.16 or § 1.17 to Deposit Account No. 11-0600.

Respectfully submitted,

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